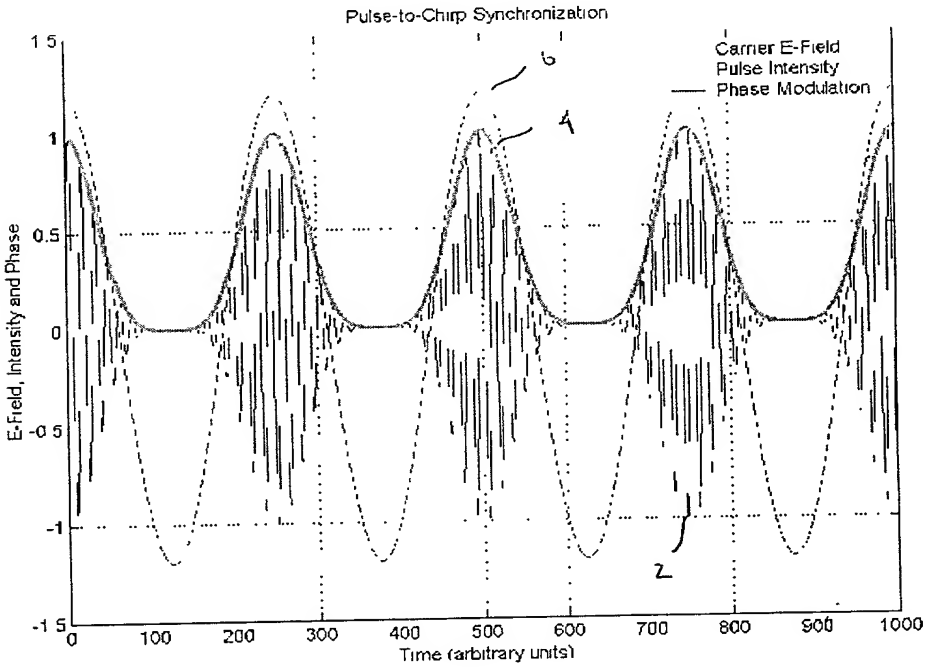
Pulse-to-Chirp Synchronization
Carrier E-Field
Pulse Intensity
Phase Modulation
E-Field, Intensity and Phase
Time (arbitrary units)
1.5
1
0.5
0
-0.5
-1
-1.5
0
100
200
300
400
500
600
700
800
900
1000

FIG. 1

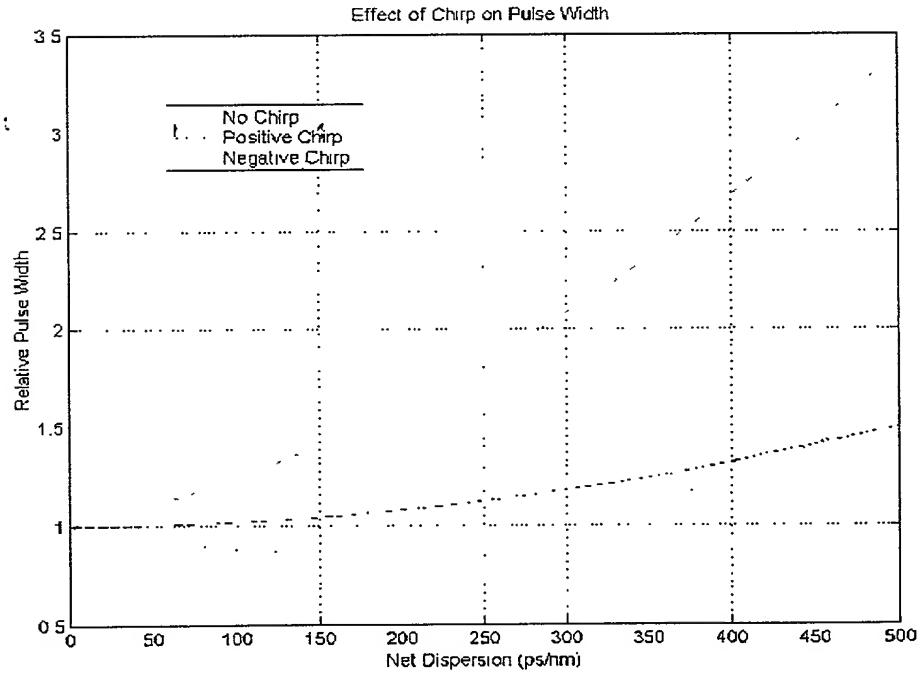
Effect of Chirp on Pulse Width
No Chirp
Positive Chirp
Negative Chirp
Relative Pulse Width
Net Dispersion (ps/nm)
3.5
3
2.5
2
1.5
1
0.5
0
50
100
150
200
250
300
350
400
450
500

Fig. 2

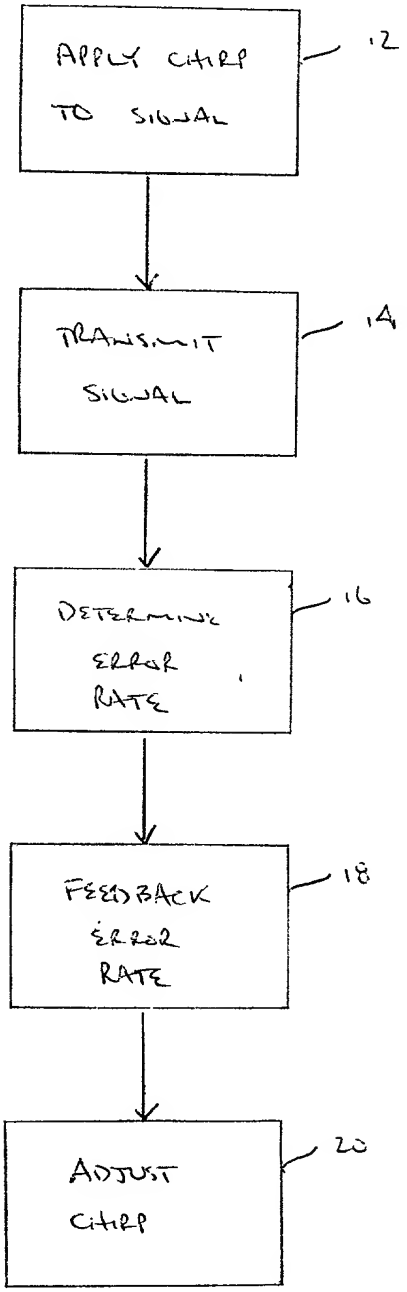

FIG. 3

Attorney Docket No.

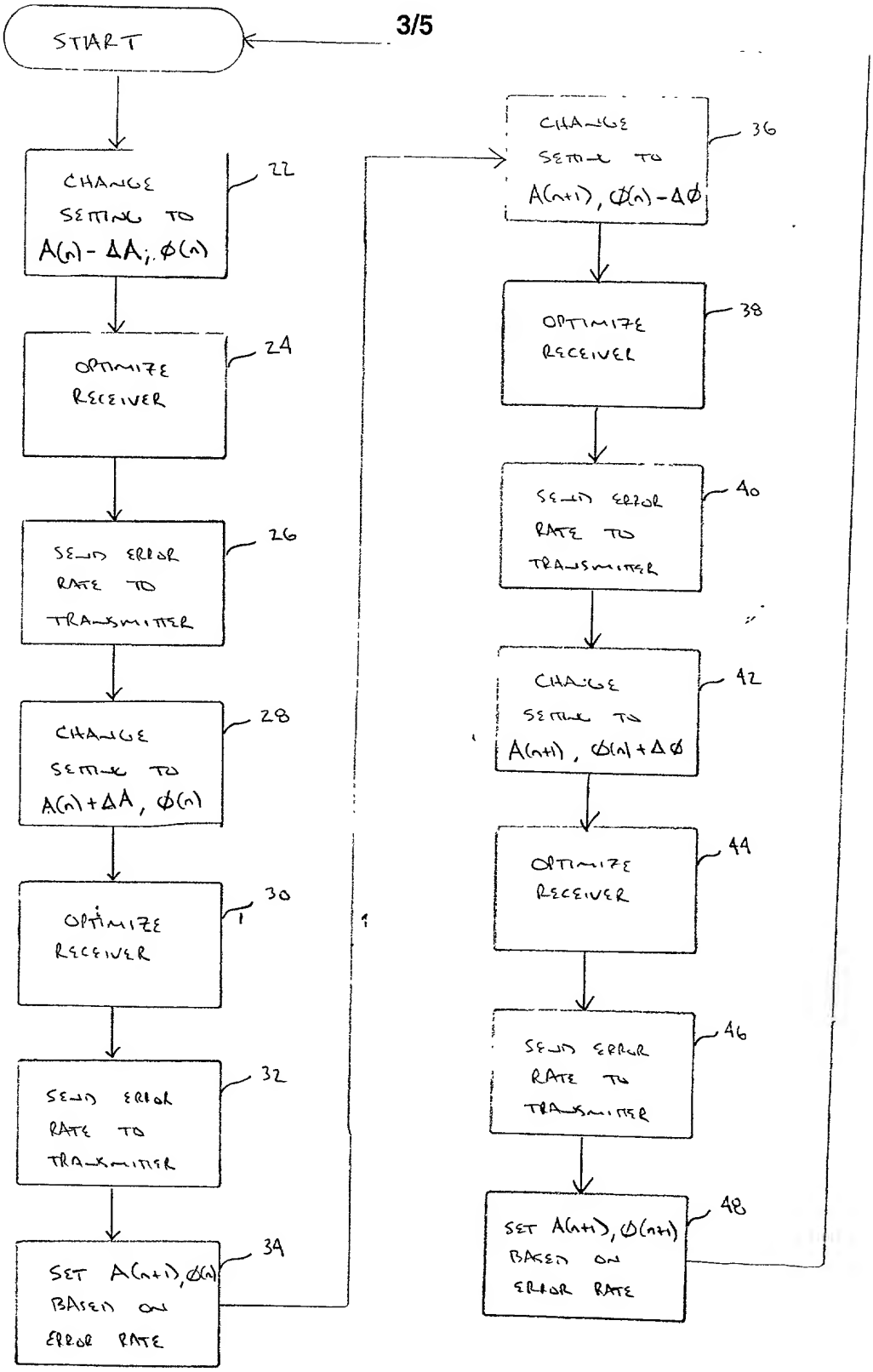
START
CHANGE SETTING TO A(n) - ΔA, φ(n)
22
OPTIMIZE RECEIVER
24
SEND ERROR RATE TO TRANSMITTER
26
CHANGE SETTING TO A(n) + ΔA, φ(n)
28
OPTIMIZE RECEIVER
30
SEND ERROR RATE TO TRANSMITTER
32
SET A(n+1), φ(n) BASED ON ERROR RATE
34
CHANGE SETTING TO A(n+1), φ(n) - Δφ
36
OPTIMIZE RECEIVER
38
SEND ERROR RATE TO TRANSMITTER
40
CHANGE SETTING TO A(n+1), φ(n) + Δφ
42
OPTIMIZE RECEIVER
44
SEND ERROR RATE TO TRANSMITTER
46
SET A(n+1), φ(n+1) BASED ON ERROR RATE
48

FIGURE 4

Message Formats:

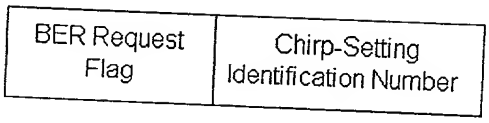

FIG. 5A

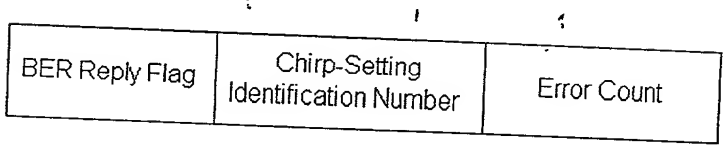

FIG 5B

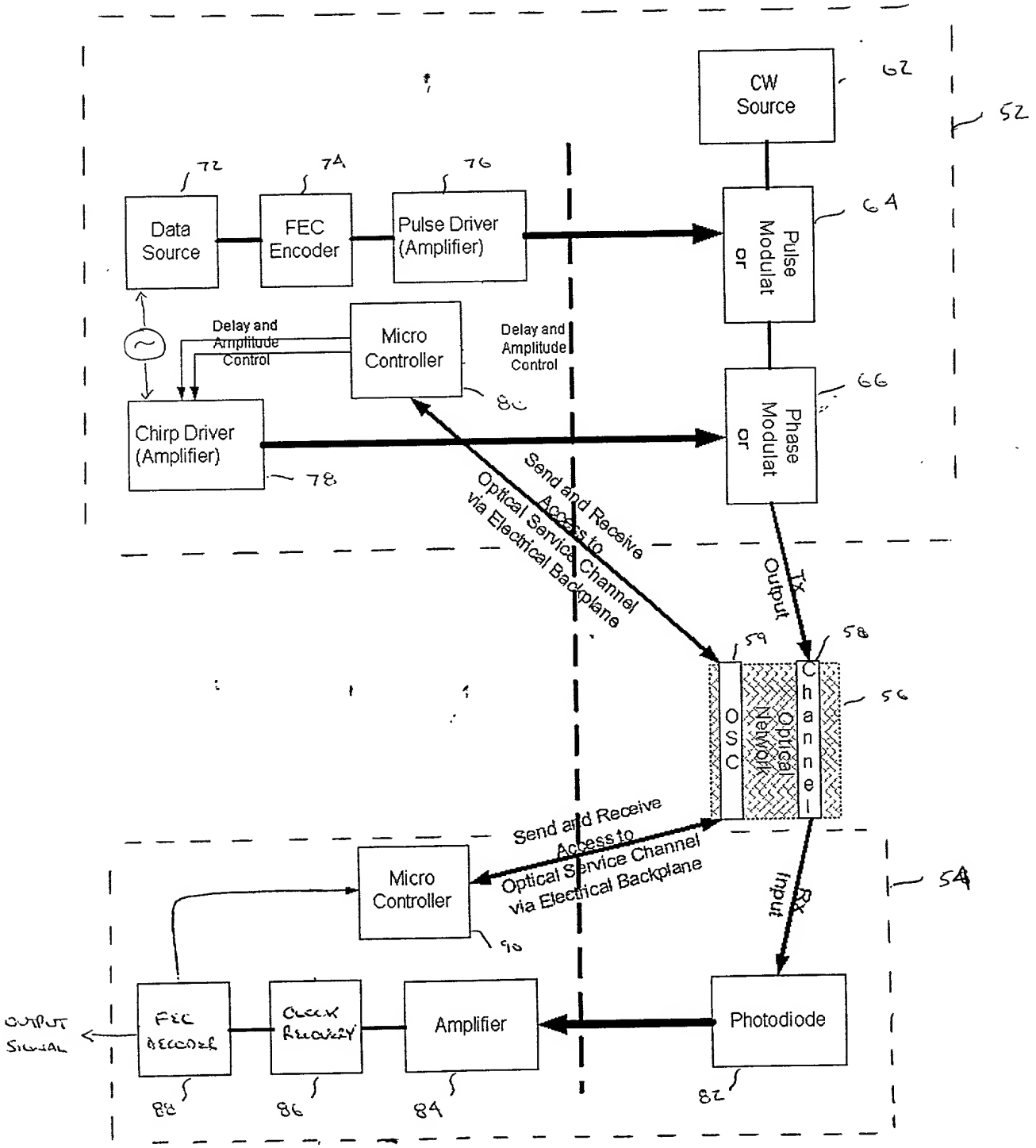
CW Source
62
52
Data Source
72
FEC Encoder
74
Pulse Driver (Amplifier)
76
Pulse Modulator
64
Delay and Amplitude Control
Micro Controller
Delay and Amplitude Control
80
Chirp Driver (Amplifier)
78
Phase Modulator
66
Send and Receive Access to Optical Service Channel via Electrical Backplane
Tx Output
59
58
OSC
Optical Network Channel
56
Send and Receive Access to Optical Service Channel via Electrical Backplane
Micro Controller
90
54
Rx Input
Output Signal
FEC Decoder
88
Clock Recovery
86
Amplifier
84
Photodiode
82

FIG. 6